



## Frequency of Broad-Spectrum Beta-Lactamase Genes Among *Escherichia coli* Strains Isolated from Urinary Tract- Infected Outpatients in Tehran

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**Background & Objectives:** *Escherichia coli* is the most prevalent agent of urinary tract infection in both outpatients and hospitalized patients. In recent years, due to extended-spectrum  $\beta$ -lactamases (ESBLs), cases of resistance to antimicrobial agents especially to cephalosporin has raised considerably. This study was aimed to determine the survey of CTX-M, SHV, TEM, OXA-1, PER-2, VEB-1 in *E. coli* isolated from outpatients with UTI at selected laboratories in Tehran, Iran.

**Methods:** This study that we had done during 6 months, from the first of October to the end of March. After isolation test, we identified 123 samples (13.63%) from among of 1677 urine samples as *E. coli* and then by using double disk Methods, 56 samples (45.52%) have recognized as ESBL and we done PCR methods on this samples in order to examine studying genes after gene extraction with special kit primarily by using universal PCR and for being sure of accurate gene extraction.

**Results:** Among 1677 urine samples, 13.63% are *E. coli* and after double disk methods, 45.52% are positive according to ESBL Molecular PCR also shows 51.8% CTX-M, 7.1% TEM, 3.6% SHV, 42% OXA-1, 8.9% PER-2 but we didn't find VEB-1.

**Conclusion:** Because of susceptibility of genes, the curing of infection causing by this bacteria fails despite of the existence of convenient recognition ways. According to statistical view, there is a direct relation between gender and age in this illness, so we can say that there is a direct relation between the ability in ESBL production and the existence of examining genes.

**Keywords:** ESBL; *E. coli*; CTX-M; OXA-1; Double Disk; Universal PCR